

## CLAIMS

1. A process for color printing an image with angled half tone screens and a colorant set that includes Cyan, Magenta, Yellow and Black colorants and at least one other colorant comprising:

5 choosing the at least one other colorant so that one of the at least one other colorant is a colorant having a hue angle intermediate the hue angles of Cyan and Magenta;

assigning a screen angle to each of the colorants in the colorant set;

providing an angled half tone screen for each of the colorants of the colorant set responsive to a color separation of the image; and

10 using the angled half tone screens to produce a color printing of the image.

2. A process according to claim 1 wherein the number of colorants in the colorant set is odd and assigning a screen angle to each of the colorants of the colorant set comprises assigning black a first screen angle, assigning one half of said non-black colorants a second screen angle and one half of said non-black colorants a third screen angle, wherein said first, second and third screen angles are different and wherein non-black colorants having adjacent hue angles are assigned different screen angles.

3. A process according to claim 1 wherein the number of colorants in the colorant set is even and assigning a screen angle to each of the colorants of the colorant set comprises assigning black a first screen angle, assigning one half of said colorants that are neither black or yellow a second screen angle and one half of said colorants that are neither black or yellow a third screen angle, wherein yellow is assigned a fourth screen angle, wherein said first, second, third and fourth screen angles are different and wherein non-black colorants having adjacent hue angles are assigned different screen angles.

4. A process according to claim 3 wherein choosing the at least one other colorant comprises choosing two colorants.

5. A process according to claim 3 or ~~claim 4~~ wherein the difference between said fourth screen angle and said first screen angle is  $45^\circ$ .

- claim 2*
6. A process according to any of claims 2 - 5 wherein the angle between said first screen angle and either of said second and third screen angles is substantially  $30^\circ$  and the angle between said second and said third screen angles is substantially  $30^\circ$ .
7. A process according to claim 6 wherein said first screen angle is  $45^\circ$ , one of said second and third screen angles is  $15^\circ$  and the other of said second and third screen angles is  $75^\circ$ .
8. A process according to any of the previous claims wherein choosing the at least one other colorant so that one of the at least one other colorant is a colorant having a hue angle intermediate the hue angles of Cyan and Magenta comprises choosing a colorant substantially exterior to the gamut of hues provided by said Cyan, Magenta, Yellow and Black colorants.
- claims 1-7*
9. A process according to any of the previous claims wherein choosing the at least one other colorant so that one of the at least one other colorant is a colorant having a hue angle intermediate the hue angles of Cyan and Magenta comprises choosing Violet.
10. A process according to any of claims 1 - 8 wherein choosing the at least one other colorant so that one of the at least one other colorant is a colorant having a hue angle intermediate the hue angles of Cyan and Magenta comprises choosing Purple.
- claim 1-7*
11. A process according to any of the previous claims wherein choosing the at least one other colorant comprises choosing at least two other colorants and wherein one of the at least two other colorants is Orange.
- claims 1-7*
12. A process according to any of the previous claims wherein Cyan and Magenta have the same screen angles.
- claims 1-7*
13. A color printing of an image produced using a process according to any of the previous claims.

14. ~~A colorant set for color printing with angled half tone screens comprising:~~  
at least five colorants including Cyan, Magenta, Yellow and Black colorants; and  
at least one colorant having a hue angle intermediate the hue angles of Cyan and  
Magenta.

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15. A colorant set according to claim 14 wherein the number of the at least five colorants  
is odd, wherein said black colorant has a first screen angle, wherein one half of said non-black  
colorants have a second screen angle and one half of said non-black colorants have a third  
screen angle, wherein said first, second and third screen angles are different and wherein non-  
10 black colorants having adjacent hue angles have different screen angles.

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16. A colorant set according to claim 14 wherein the number of the at least five colorants  
is even, wherein said black colorant has a first screen angle, wherein one half of said colorants  
that are neither black or yellow have a second screen angle and one half of said colorants that  
are neither black or yellow have a third screen angle, wherein yellow has a fourth screen  
angle, wherein said first, second, third and fourth screen angles are different and wherein non-  
black colorants having adjacent hue angles have different screen angles.

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17. A colorant set according to claim 16 wherein the number of the at least five colorants  
is six.

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18. A colorant set according to claim 16 ~~or claim 17~~ wherein the difference between said  
fourth screen angle and said first screen angle is  $45^\circ$ .

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19. A colorant set according to <sup>claim 15</sup> ~~any of claims 15-18~~ wherein the angle between said first  
screen angle and either of said second and third screen angles is substantially  $30^\circ$  and the  
angle between said second and said third screen angles is substantially  $30^\circ$ .

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20. A colorant set according to claim 19 wherein said first screen angle is  $45^\circ$ , one of said  
second and third screen angles is  $15^\circ$  and the other of said second and third screen angles is  
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21. A colorant set according to any of claims 14 - 20 wherein the at least one colorant having a hue angle intermediate the hue angles of Cyan and Magenta is a colorant substantially exterior to the gamut of hues provided by said Cyan, Magenta, Yellow and Black colorants.

22. A colorant set according to any of claims 14 - ~~21~~<sup>20</sup> wherein said at least one colorant having a hue angle intermediate the hue angles of Cyan and Magenta comprises one colorant.

23. A colorant set according to any of claims 14 - ~~22~~<sup>20</sup> wherein at least one of said at least one colorant having a hue angle intermediate the hue angles of Cyan and Magenta is Violet.

24. A colorant set according to any of claims 14 - ~~23~~<sup>20</sup> wherein at least one of said at least one colorant having a hue angle intermediate the hue angles of Cyan and Magenta is Purple.

25. A colorant set according to any of claims 14 - ~~24~~<sup>20</sup> comprising at least 6 colorants wherein one of the colorants is Orange.

26. A colorant set according to any claims 14 - ~~25~~<sup>20</sup> wherein Cyan and Magenta have the same screen angles.